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Geoeconomic dynamics and the network of small cities in the West of Santa Catarina

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Abstract
The purpose of this paper is to contribute to the analysis of small cities as part of the regional geoeconomic dynamic of West Catarinense, located in the south of Brazil. It is a region that has developed technologically from the second half of the twentieth century and constituted in its interior a complex and diverse urban red. Since the region has an urban network formed mostly by small towns, whose population hardly exceeds 30 thousand people, the question arises of complementarity between the urban centers of this territorial area. Methodologically, the article was developed from the theoretical instrumental of geography science and qualitative, quantitative, and exploratory methodological procedures. It concluded that small cities are responsible for an important part of the regional economic movement and contribute to regional and urban development. Moreover, in West Catarinense produced a relevant geoeconomic complexity, through the dynamics of agribusiness and the role of small towns in the regional economy and transportation networks.
Keywords: Geoeconomic dynamic. Regional economic Complexity. West catarinense. Urban network. Small cities.

Dinâmica geoeconômica e a rede de pequenas cidades no Oeste catarinense

Resumo
Este artigo objetiva contribuir com a análise das pequenas cidades como parte ativa da dinâmica geoeconômica regional do Oeste catarinense, situada no Sul do Brasil. Trata-se de uma região que se desenvolveu tecnologicamente a partir da segunda metade do século XX e constituiu no seu interior uma rede urbana complexa e diversa. Uma vez que a região possui a rede urbana formada majoritariamente por pequenas cidades, cuja população dificilmente ultrapassa os 30 mil habitantes, levanta-se a questão do papel de complementaridade entre os centros urbanos desse recorte territorial. Metodologicamente, o artigo foi desenvolvido a partir do instrumental teórico da ciência geográfica e procedimentos metodológicos qualitativos, quantitativos e exploratórios. Chegou-se à conclusão de que as pequenas cidades são responsáveis por importante parcela da movimentação econômica regional e contribuem para o desenvolvimento regional e urbano. Ademais, no Oeste catarinense foi produzida uma relevante complexidade geoeconômica, por meio da dinâmica dos agronegócios e o papel das pequenas cidades na economia regional e nas redes de transporte.

Palavras–chave: Dinâmica geoeconômica. Complexidade econômica regional. Oeste catarinense. Rede urbana. Pequenas cidades.

Dinámica geoeconómica y la red de pequeñas ciudades en Oeste catarinense

Resumen

Este artículo tiene como objetivo contribuir con el análisis de las pequeñas ciudades cómo parte activa de la dinámica geoeconómica regional del Oeste catarinense, ubicada en el Sur de Brasil. Se trata de una región que se desarrolló tecnológicamente a partir de la segunda mitad del siglo XX y constituyó en su interior una red urbana complexa y diversa. Una vez que la región tiene la red urbana formada mayoritariamente de pequeñas ciudades, cuya población difícilmente es superior a 30 mil personas, se levanta la cuestión del papel de complementariedad entre los centros urbanos del recorte territorial llevado en consideración. Metodológicamente, el artículo fue desarrollado desde el instrumental teórico de la ciencia geográfica y procedimientos metodológicos cualitativos, cuantitativos y exploratorios. Se llegó a la conclusión de que las pequeñas ciudades son responsables por importante parcela de la movimentación económica regional y contribuyen para el desarrollo regional y urbano. Además, en el Oeste catarinense fue producida una relevante complexidad geoeconómica, por medio de la dinámica de los agronegocios y el papel de las pequeñas ciudades en la economía regional y en las redes de transporte.

Palabras clave: Dinámica geoeconómica. Complexidad económica regional. Oeste catarinense. Red urbana. Pequeñas ciudades.

1 Introduction

Cities are forms of human settlement. In each historical period, they fulfill certain types political, economic, social and cultural roles. At the same time, they concentrate and disperse the assets and flows of urbanization to use the terminology proposed by Santos (1988). They also play an important role in promoting technological progress and transforming society.

In Brazil, in the field of urban geography, it is common to find different typological classifications of cities, which include urban networks and hierarchies. However, these classifications sometimes do not allow theoretical and analytical progress, being based on quantitative views of the spatial distribution of the population. To understand the genesis and recent role of places, we need to move beyond forms to formations: in the study of small cities, the task of understanding them as transitory forms and in process is central. In this respect, we confirm the geographical literature dedicated to the subject of less complex urban centers, as shown by Corrêa (1999), Fresca (2001; 2010; 2010), Endlich (2009), Casaril (2014) and Dias (2019). From a qualitative analysis that seeks to focus on the city in its regional context, in its interaction with the urban network - of which it is a link - the territorial division of labor and the level of complexity of its functions and activities, we can move towards analyses closer to concrete reality.

With the expansion of industrialization and urbanization since the 1930s, we have observed a gradual technical-productive complexity in different regions of Brazil. At present, many cities can be understood as having a certain level of complexity in their productive activities, resulting in multiple spatial interactions. Based on recent studies, such as "Regions of Influence of Cities - REGIC" (IBGE, 2020), we can point out that there is a predominance of less complex urban centers, understood as local centers and small cities, to refer to Fresca's proposal (2010).

Both from a demographic and productive activity point of view, these are centralities with different urban roles that it does not exceed the economic density of cities considered large and medium.

In the context of studies on regional and urban development, Brazilian cities can be analyzed from different perspectives, as shown by studies by IBGE (2017; 2020), geographers (FRESCA, 2017; CORRÊA, 2012), economists (MCCANN, 2001; MONASTERIO and CAVALCANTE, 2011), among others. These studies, broadly speaking, highlight the economic importance that large and medium-sized cities exert on considerable territorial areas. However, there is a gap in urban, regional and economic geography studies that highlight the role of small cities (generally considered cities with up to 30 thousand inhabitants[1]) in the economic and urban dynamics of a given region. Therefore, the question arises: do small cities tend to disappear in the regional urban geography because of their small population or the wealth they produce? Should the importance of small cities be diminished in urban geography studies?

Understanding the role of the network of small cities in regional studies of economic and urban geography can contribute to the understanding of geo-economic and urban-regional dynamics. Looking at the different regional sections of the Brazilian reality, there are many cities that have small populations and especially small economic movements compared to larger cities. According to population data, in 2021 the country had 3,770 municipalities with a population estimated at less than 20 thousand inhabitants, which represents 67% of Brazilian municipalities. In the Southern Region of Brazil, there are a total of 919 municipalities or 77% of the total; in the State of Santa Catarina, there are 224 municipalities, or 76% of the total; finally, in the Western Region of Santa Catarina, there are 103 municipalities, or 87% of the total, with less than 20 thousand inhabitants (IBGE, 2021).

[1] There are analyses that consider small cities with a population of over 30 thousand inhabitants. However, to have a parameter, in terms of population, it is around 30 thousand inhabitants. In different parts of the article, instead of using the term "Mesoregion of Western Santa Catarina", the terms "Oeste Santa Catarina", "Region Oeste Santa Catarina" and/or "Oeste de Santa Catarina" are also used to refer to the same spatial section throughout the manuscript. According to IBGE (1990), the mesoregion consists of the following municipalities Abelardo Luz, Água Doce, Águas de Chapecó, Águas Frias, Alto Bela Vista, Anchieta, Arabutã, Arroio Trinta, Arvoredo, Bandeirante, Barra Bonita, Belmonte, Bom Jesus, Bom Jesus do Oeste, Caçador, Caibi, Calmon, Campo Erê, Capinzal, Catanduvas, Caxambu do Sul, Chapecó, Concórdia, Cordilheira Alta, Coronel Freitas, Coronel Martins, Cunha Porã, Cunhataí, Descanso, Dionísio Cerqueira, Entre Rios, Erval Velho, Faxinal dos Guedes, Flor do Sertão, Formosa do Sul, Fraiburgo, Galvão, Guaraciaba, Guarujá do Sul, Guatambu, Herval d'Oeste, Ibiam, Ibicaré, Iomerê, Ipira, Iporã do Oeste, Ipuaçu, Ipumirim, Iraceminha, Irani, Irati, Itá, Itapiranga, Jaborá, Jardinópolis, Joaçaba, Jupiá, Lacerdópolis, Lajeado Grande, Lebon Régis, Lindóia do Sul, Luzerna, Macieira, Maravilha, Marema, Matos Costa, Modelo, Mondaí, Nova Erechim, Nova Itaberaba, Novo Horizonte, Ouro, Ouro Verde, Paial, Palma Sola, Palmitos, Paraíso, Passos Maia, Peritiba, Pinhalzinho, Pinheiro Preto, Piratuba, Planalto Alegre, Ponte Serrada, Presidente Castelo Branco, Princesa, Quilombo, Rio das Antas, Riqueza, Romelândia, Saltinho, Salto Veloso, Santa Helena, Santa Terezinha do Progresso, Santiago do Sul, São Bernardino, São Carlos, São Domingos, São João do Oeste, São José do Cedro, São Lourenço do Oeste, São Miguel da Boa Vista, São Miguel do Oeste, Saudades, Seara, Serra Alta, Sul Brasil, Tangará, Tigrinhos, Treze Tílias, Tunápolis, União do Oeste, Vargeão, Vargem Bonita, Videira, Xanxerê, Xavantina e Xaxim. The spatial outline of these municipalities, which make up the Western Region of Santa Catarina, can be seen on Maps 1 and 2, included in Points 2 and 3 of the manuscript.

The Mesoregion of Western Santa Catarina, the territorial section of this article, is composed of 118 municipalities. In this region, the 103 municipalities with less than 20 thousand inhabitants total 547,320 people, which is, 42.3% of the population. On the other hand, the 15 municipalities with more than 20 thousand inhabitants total 746,708 people (57.7% of the total - IBGE, 2021). From this point of view, the towns that had considered small together show a relevant participation in the calculation of the total population of the region. From an economic point of view, the same 15 municipalities with more than 20 thousand inhabitants accounted for 61.4% of the region's GDP, while the 103 municipalities with less than 20 thousand inhabitants accounted for 38.6% of the GDP. It is worth highlighting that Chapecó, as a medium-sized city with an important role in the Brazilian urban network, has a preponderance in the political and productive command of the West of Santa Catarina. However, this influence - it is one of the 48 most central urban centers in the country - is not disconnected from the so-called small cities.

In this sense, although small cities participate more from the point of view of population than from the point of view of wealth generation, in the case of the Western Region of Santa Catarina, the data highlight the need for regional analyses, be they economic, geographic, social or political; be aware of what happens in small cities.

For this reason, this article aims to contribute to the analysis of small towns as an active part of regional geo-economic dynamics. In this case, we have tried to focus on the West Santa Catarina mesoregion, considering its characteristics and socio-spatial formation. To achieve this, from a methodological point of view, the construction of the article took four steps: 1) theoretical and thematic bibliographic explorations; 2) data collection; 3) tabulation, systematization and organization of data and bibliography; 4) analysis and processing of data in relation to the collected bibliography.

The text is divided into two parts, in addition to this introduction and concluding reflections. In the first, we present a synthesis of socio-spatial formation in the context of the western region of Santa Catarina, with an emphasis on the technical and productive transformations that forged the current network of cities in the region. In the second part, we deepen the debate based on regional geoeconomics, focusing on economic and industrial dynamics and the circulation and transportation system in an attempt to contribute to the discussion that small cities are relevant to be implicit in regional analyses.

2 The Socio-spatial Formation and the Urban-Regional Structure of the Western Region of Santa Catarina

To fully comprehend the process of economic and social formation in the western region of Santa Catarina, it is crucial to refer to the works of Santos (1977), Marx and Engels (2011), Mamigonian (1996), and Lenin (1974). These eminent authors provide a solid theoretical foundation to understand the socio-spatial formation process in the western region of Santa Catarina and its indispensable role in the development of capitalism in the southern regions of Brazil.

This theoretical base applies a specific method that considers nature and society dialectically. It simultaneously promotes general and specific conditions in a holistic approach "through which each social formation is understood as spatially

and temporally determined" (PEREIRA, 2003, p. 99). The category of socio-spatial formation (SANTOS, 1977) is derived from the theory of economic and social formation of Marx and Engels (2011). According to Santos (1977), the category of socio-spatial formation was created to understand the evolution of a given society in its concrete reality. Together with the notion of geographical space (product and condition for the reproduction of social relations), the socio-spatial formation must be understood as a historically and geographically located formation. Therefore, each socio-spatial formation is unique, in which general processes interact with particular characteristics, producing specific geographical combinations (CHOLLEY, 1964).

From this point of view, it can be concluded that the western region of Santa Catarina is part of the context of the consolidation of territorial borders in southern Brazil (late 19th and early 20th century). During the period of occupation of the lands in the west of the state, there was a certain fear on the part of the Brazilian government of losing these lands to Argentina. Therefore, the occupation was part of the government's strategy to demarcate the lands so as not to lose them to Argentina in the discussions of the Palmas or Missiones[2] question in 1895 (HEINSFELD, 1996). This was the beginning of the demarcation and commercialization of the lands to the west of Santa Catarina by the colonization companies. It was a combined movement of occupation and expansion of the agricultural frontier to the west of Santa Catarina.

Land demarcation and timber exploitation became big business for the colonizing companies, especially in the first half of the 20th century. Before taking possession of the land, the settlers signed agreements with the companies in which they agreed to remove the most commercially valuable trees from the land (Araucária, Grápia, Cabriúva, Angico, Cedro, among others). According to Goularti Filho (2016, p. 71),

> Among the colonizing companies, the largest was Brazil Development and Colonization, which received 569,057 acres of land and was part of the powerful North American Farquhar Trust. This company also owned the Southern Brazil Lumber & Colonization Company railroad and sawmill. Also notable were the gaucho companies Bertaso and Maia & Cia., which received 224,924 ha and colonized Chapecó; the company Chapecó Pepery Ltda.; with 345,254 ha, which colonized Mondaí; the construction and colonization company Oeste Santa Catarina, with 76,473 ha; the company Companhia Territorial Sul Brasil, with 30,576 ha, which colonized Itapiranga. In total, these six companies owned more than 1.3 million hectares.

In addition to the scenario of land division installed in the west of Santa Catarina, "the lack of new areas to be colonized and the transformation of the tobacco economy in Santa Cruz in the 1940s and 1950s" (GOULARTI FILHO, 2016, p. 71). Furthermore, the valley of the Sinos River (São Leopoldo, Novo Hamburgo, Igrejinha) and the Caí River (São Sebastião do Caí, Montenegro), the mountainous

[2] The issue of Palmas or Missiones was part of a geopolitical project by Argentina and Brazil, in which both claimed territories where the western part of Santa Catarina and the southwestern part of Paraná are located today, in order to "impose a project of hegemony over the Southern Cone of the Americas" (HEINSFELD, 1996, p. 147). Brazil won the dispute, and the territory claimed by both countries became a definitive part of Brazil.

areas (Caxias do Sul, Bento Gonçalves, Farroupilha, Gramado, Canela, Garibaldi) and the western part of Santa Catarina itself were also areas from which many settlers migrated to the west and extreme west of Santa Catarina. Thus, the basis of the occupation process in the West of Santa Catarina was motivated by the possibility of these settlers to reproduce themselves on small plots of land (areas ranging from 5 ha to 40 ha) as small commercial production.[3]

The arrival of immigrants from Rio Grande do Sul in western Santa Catarina represented the possibility of implementing new productive and economic strategies. This occurred at a time of deepening capitalist relations of production. Mamigonian (1996), in convergence with the category of socio-spatial formation of Santos (1977), emphasizes that any rigorous study of socio-spatial formation must take into account the spatialization and location of productive activities, as Lenin (1974) did when studying the development of capitalism in Russia (Lenin was one of the intellectuals who best analyzed national economies, their insertion in the world and the regions within them).

When Italian Gauchos arrived in the region (Espíndola, 1999), the so-called colonial centers were born, whose economic activities, besides agriculture, were able to satisfy the initial needs of the first colonizers. These first colonial centers were responsible for the emergence of the first villages in the West of Santa Catarina. At the same time, from 1910, sawmills, small mechanical workshops and manufacturers of lard and pork products were established in the region. Around 1940, the production of pork derivatives was aimed at supplying the local market and, through transportation by the São Paulo-Rio Grande Railway (EFSPRG), part of the demand of cities in the South and Southeast of Brazil. In this context, small rural complexes were formed, which lived from the commercial movements established in the colonial sales system. On the other hand, surplus commercial capital was in the hands of small local traders. Producers and traders of alfalfa, yerba mate, pigs and corn were prominent.

The colony-sales system was established on small properties that sold surplus produce. The formation of a local market occurred simultaneously with the region's occupation. The process quickly integrated into the national economy by supplying pork derivatives to cities in the South and Southeast of Brazil (GOULARTI FILHO, 2016). A few traders were prominent in buying and selling local produce. Attilio Fontana was a pioneer in commercial activities in the former municipality of Cruzeiro, now Joaçaba. He began exporting alfalfa and pigs to São Paulo (ESPÍNDOLA, 1999). Traders like Fontana were successful in commercial relations and received government incentives for investing in meat processing[4]. As a consequence, several small abattoirs started functioning in the area, specializing in

[3] According to Lenin (1974, pp. 22-23), commercial production is an organization of the social economy in which individual and isolated producers specialize in the elaboration of certain products. This organization is crucial for satisfying societal needs, since it requires the purchase of products on the market.

[4] In 1944, Attilio Fontana established Sadia in Concórdia municipality and became one of the pioneering figures in pig slaughter and processing. This occurrence proved to be a significant catalyst for the regional economy, which prompted numerous pig breeders to commence or widen their breeding stock operations.

the processing of goods that were predominantly dispatched to the São Paulo market.

It is essential to note that the exploitation of timber and yerba mate in the region occurred before pig farming. As a result, farmers used wood and yerba mate as an initial investment to enable them to invest in pig farming, among others. Thus, agriculture, livestock, yerba mate, and wood directly relate to generating commercial capital in small commercial production. Von Dentz (2022, p. 57) highlights that regional businesses in western Santa Catarina were rooted in commercial capital and small commercial production. This foundation, though nascent during the 1950s and 1960s, led to new investments across various industries. Espíndola (2002) noted investments in the production of lard, preserved meat, salamitos, salamis, sausages, and other related products. However, investments in grain production (corn, soybeans, beans, and wheat), animal farming (pigs, chickens, beef, and dairy cattle), as well as other commercial and industrial activities, emerged during this period. These currently compose the economic activities of the region.

Parallel to the development of regional capitalism, the first villages emerged. These villages were responsible for centralizing a trade in basic products. Corrêa (1989) suggests that the colonization process was accompanied by a movement to form an urban network. This network took on various forms of organization and expansion of capitalism in the region. The rural complex is becoming more connected to the urban complex as surplus production beyond subsistence increases. This causes a significant rise in commercialization within the cities of the region. During the 1960s and 1970s, small cities saw the installation of the first agro-industries, leading to the destruction of the rural complex and the formation of the agro-industrial complex. Today, many of these cities are the most relevant in the region in terms of economy and population, including Chapecó, Videira, Concórdia, São Miguel do Oeste, Xanxerê, among others.

Within the regional urban network, cities played different roles.Since their origin as villages, they shared a common trait of centralizing commerce. In the 1970s and 1980s, they expanded their functions to cater to the needs of the surrounding population.Thus, the urban-regional network with limited functional complexity and weak intercity connections has evolved into faster connections, particularly after road construction, resulting in a higher degree of complexity. This dynamic evolution of the urban-regional structure has laid the foundation for the development of a flourishing regional consumer market.

The morphological evolution of the municipal division of Western Santa Catarina during different periods of the 20th century is a crucial factor in understanding the establishment of the urban-regional network. Table 1 illustrates the municipalities that gained autonomy per decade in the region of West Santa Catarina within the timeline ranging from 1920 to 1990.

Table 1 - Emancipated Municipalities in Western Santa Catarina (1920-1990)

Decade of emancipation	Number of emancipated municipalities
1920	2
1930	2
1940	4
1950	23
1960	35
1980	6
1990	46
Total	**118**

Source: histories of municipal councils

In the 1990s, the Western region of Santa Catarina witnessed a large number of municipal emancipations alongside a process of intense restructuring of productive activities. These structural changes were a result of the fiscal and financial crisis Brazil was experiencing and the burden of external debt. During the 1990s, Brazilian economic growth declined, and neoliberal policies were adopted, resulting in multinational companies entering numerous economic sectors. This caused significant changes that hindered the country's progress while simultaneously increasing competitiveness and leading to competition through productive restructuring and the implementation of new strategies by the productive sectors. Furthermore, many domestic machinery and equipment companies experienced an economic crisis that led to the sector's denationalization and the closure of some businesses.

The crisis in West Santa Catarina led to the concentration of production, fueled by technologies in production processes. It prompted many producers from diverse sectors to restructure their operations to stay in business, while others had to sell their assets and relocate to urban areas for employment. This process contributed to the region's specialized productive sectors and diversified the range of products produced. The crisis forced traders, industrialists, and farmers to reinvent themselves, resulting in economic strangulation. Additionally, the crisis caused the largest urban centers in the region to consolidate themselves in the regional hierarchy, while a significant number of small cities entered a stage of economic and population stagnation or recession.[5]

In the 2000s, Brazil experienced a new phase of economic growth (BIELSCHOWSKY, 2014). This period was marked by the promotion of subsidized credit, the expansion of access to public policies, an increase in the minimum wage, and the expansion of exports across various sectors, particularly agribusiness, where China played a significant role as a trading partner. Between 2000 and 2016, von Dentz and Espíndola (2019) note that in the western region of Santa Catarina, 118 municipalities experienced a 26.2% reduction in area harvested from temporary crops (including pineapple, garlic, peanuts, rice, oats, sweet potatoes, sugar cane,

[5] According to Von Dentz (2022), during the 1990s, the western region of Santa Catarina experienced substantial population loss to other regions of Brazil, such as the Central-West region, the North of Santa Catarina, the Itajaí valley, the metropolitan region of São Paulo, and some cities in Rio Grande do Sul. This period also witnessed the intensification of rural exodus that had been happening since the 1970s and 1980s, but was exacerbated by the crisis of the 1990s.

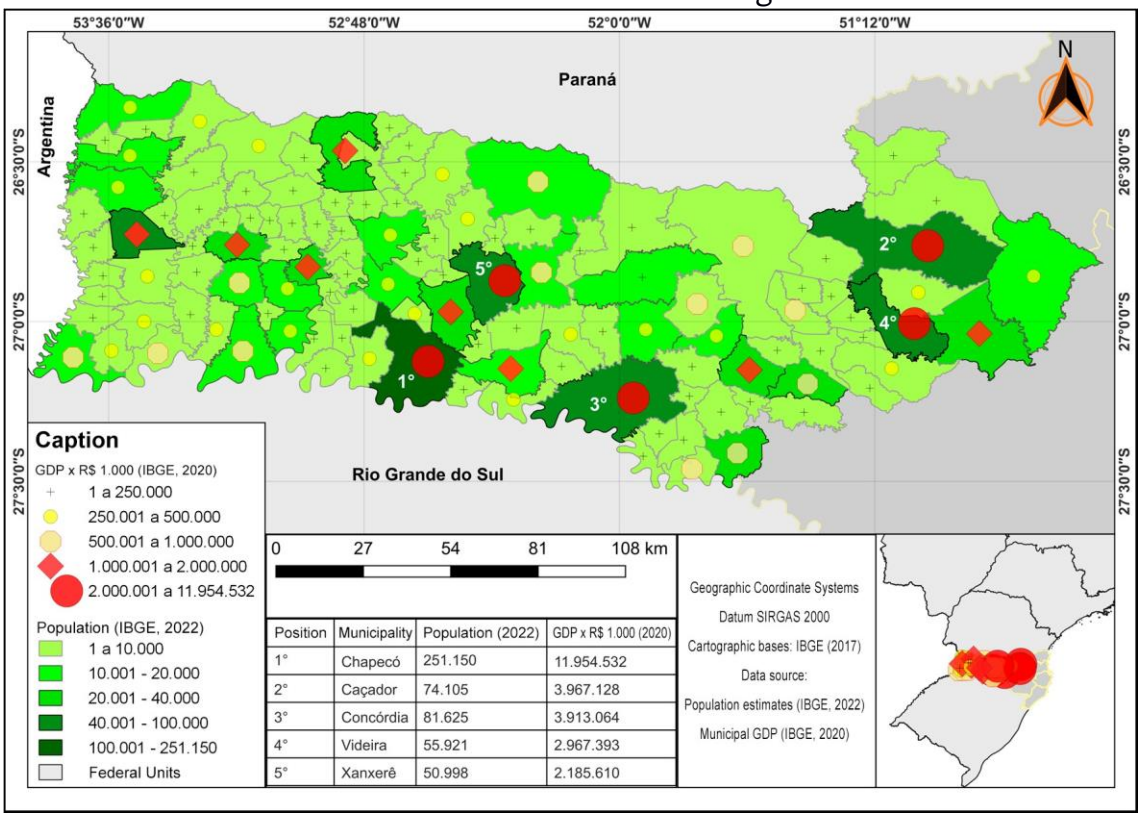
beans, tobacco, cassava, watermelon, melon, corn, soybeans, tomatoes, wheat, and triticale), despite a 5.67% increase in production. This data illustrates a significant increase in productivity despite a decrease in crop area. From 2012 to 2017, the western region of Santa Catarina experienced growth in livestock farming. The chicken herd increased by 1.78% and reached 9.4 million in 2017. Meanwhile, the pig herd increased by 10.9% and reached 6.1 million in 2017. Milk production also grew by 24%, reaching 2.33 billion liters in 2017. Finally, the cattle herd grew by 12% and reached 2.1 million heads in 2017.

Between 2002 and 2017, the industrial sector maintained a 25% share of the region's GDP. Notably, the services sector increased its participation from 35% to 40% of the GDP in the western region of Santa Catarina, according to IBGE (2017). Nevertheless, there is a significant concentration of socioeconomic data in some municipalities when analyzed. According to IBGE (2022) estimates, the population of the region was distributed as follows: 56.32% resides in the fourteen most populous municipalities, namely Chapecó, Caçador, Concórdia, Videira, Xanxerê, São Miguel do Oeste, Fraiburgo, Joaçaba, Xaxim, Maravilha, São Lourenço do Oeste, Capinzal, Herval d'Oeste, and Pinhalzinho. These same municipalities account for 60.5% of the region's GDP, according to IBGE (2020) data. Of the fourteen municipalities, Pinhalzinho has the smallest population, with 20,313 inhabitants (IBGE, 2022).

The remaining 104 municipalities in the western region of Santa Catarina each have a population of less than 20,000 inhabitants. Additionally, fourteen other municipalities (Seara, Itapiranga, Palmitos, Dionísio Cerqueira, São José do Cedro, Lebon Régis, Mondaí, Ponte Serrada, São Carlos, Cunha Porã, Catanduvas, Faxinal dos Guedes, Irani, and Guaraciaba) fall within the range of 10,000 to 20,000 inhabitants. Thus, 76.27% of the municipalities in the West region of Santa Catarina have a population below 10,000, while 11.86% have a population between 10,000 and 20,000. The remaining 11.86% have a population exceeding 20,000. Chapecó is the sole municipality in the area with a population exceeding 100,000. Map 1 displays the distribution of the population[6] and GDP of municipalities in the western region of Santa Catarina, utilizing the 2022 data from IBGE for population and 2020 data for municipalities' GDP. The map exhibits a clear and concise representation of the aforementioned geographical areas.

[6]Data from the 2022 IBGE Census estimates were considered, as until the moment the data was systematized and organized into maps, tables and graphs; Official data from the 2022/2023 demographic census had not been released.

Map 1 – Spatial distribution of population (2022) and GDP (2020) of municipalities in the West Santa Catarina mesoregion



Position	Municipality	Population (2022)	GDP x R$ 1.000 (2020)
1°	Chapecó	251.150	11.954.532
2°	Caçador	74.105	3.967.128
3°	Concórdia	81.625	3.913.064
4°	Videira	55.921	2.967.393
5°	Xanxerê	50.998	2.185.610

Source: demographic census estimates (IBGE, 2022); GDP of municipalities (IBGE, 2020)

As depicted in Map 1, the light green regions annotated with a plus sign denote municipalities characterized by populations not exceeding 10,000 and a GDP of up to R$250 million. This distinction serves to delineate the economic and demographic focal points within the region from the expansive zones comprised of smaller cities. A comprehensive understanding of urban geography, population geography, regional geography, economic geography, and the formulation of regional policies hinges on scrutinizing the multitude of small cities interspersed throughout regional geographic areas. Hence, it is imperative to incorporate these smaller entities into the analytical framework to glean a more nuanced perspective on the overall regional dynamics.

Small cities possess economic, social, political, and cultural importance that can and should be studied with the same seriousness as in studies of cities with larger populations and economic dimensions (for example, medium-sized cities, large cities, and metropolitan areas). Against this backdrop and after providing a brief overview of the socio-spatial formation of the region under analysis, the subsequent section examines the distinctive part small cities have played in the recent changes to regional geo-economics.

3 The network of small cities as an active part of regional geo-economic dynamics

This item will analyze small cities located in western Santa Catarina concerning their geo-economic dynamics. Two selected activities are discussed: the agribusiness economic sector and its extensive network of complementarities, as

well as the transport sector as a particular case of these associated activities that will receive special attention.

3.1 The geo-economic dynamics of agribusiness and the implications for small cities

Agribusiness[7] serves as the foundational component of the geo-economic dynamics in the western region of Santa Catarina. The agricultural sector thrives in the area, with noteworthy segments consisting of grain and fruit crops, such as soy, corn, wheat, grapes, apples, and horticulture, as well as animal segments, including swine, beef cattle, chicken, and dairy cattle. Notably, soybean production has undergone significant growth in the region, increasing from 280 thousand tons in 2002 to 1.2 million tons in 2018. Concurrently, milk production increased from 602 million liters in 2000 to 2.3 billion in 2018. The number of cattle in the region grew from 1.3 million in 2000 to 2.1 million in 2018, while the pig population increased from 3.7 million in 2000 to 6 million in 2018. Additionally, machinery and equipment industries such as wood, paper, cellulose, furniture, packaging, and animal nutrition saw growth in assets, revenues, and employment opportunities. Additionally, the agriculture industry is the primary employer in western Santa Catarina, accounting for approximately 75% of the region's industrial workforce (Von Dentz, 2022).

Therefore, it can be asserted that the agribusinesses which have established themselves as production chains in that area are integral to its socio-spatial development (Espíndola, 2002). Many small cities in the region lack significant industries, therefore, agricultural activities remain the primary source of livelihood for the majority of the population, either as small plot owners or rural workers. Industrial or service sectors that are directly or indirectly linked to agricultural activities also play a role.

The impact of agribusiness within the region, particularly in small cities, is multifaceted. Advanced chicken, milk, and pig production technologies are prominent, yet a substantial number of informal workers are still involved in temporary agribusiness activities. It is important to note that the geo-economic dynamics of the western region of Santa Catarina, as well as other regions of Brazil, particularly Paraná and Rio Grande do Sul, are linked to emerging agribusinesses. These characteristics can also be found in small cities.

Small cities can maintain their economic structure by linking to operational agribusinesses through the regional road circulation system that allows for asphalt connectivity. Item 3.2 prioritizes the small cities and circulation nodes supported by the region's road transport system.

3.2 Small cities and road transport: regional circulation nodes

We will now examine the geoeconomic dynamics of transportation in the comparatively simpler urban centers of Western Santa Catarina. We aim to understand the unique forms of urbanization in these small cities and how they are

[7] Unlike a vast bibliography that defines agribusiness only in terms of what is linked to the production of commodities and the size of the productive area, here agribusiness is defined as a production chain "which involves everything from the manufacture of inputs, through production in agricultural establishments, through processing and final consumption" (Contini et al., 2006, p. 6).

connected to the production process through the circulation of goods. As Santos (1985) has pointed out, analyzing geographic space in this way can aid in understanding the bigger picture. Therefore, this study will analyze regional production dynamics with a particular focus on transportation.

Transportation is a crucial aspect of human existence and work development, which is vital for the reproduction of society and the creation of geographic space. It is a significant spatial element that must be considered when analyzing the relevant region and examined as a variable within each small city that is emphasized in this study. According to Silveira (2011; 2019), the transportation sector facilitates the circulation of goods, which is a crucial component of the wider production process. From this perspective, entities develop strategies to optimize dedicated networks, thereby shaping the logistical plans of both the government and corporations.

Currently, in western Santa Catarina, there exists a series of transportation routes for road networks with emphasis on spatial interactions resulting from the movement of goods and passengers. This region plays a significant role in integrating the national territory beyond its function as a mere passage between southern states like Paraná and Rio Grande do Sul. It involves distinct regional dynamics concerning transportation. As per Huertas (2018, p. 504), there is a more complex "territorial synergy" in this part of Brazil. Small cities function as transportation hubs at the regional level, located along significant roadway arteries that connect them to the rest of the country.

Various spatial interactions[8] arise from the movement of passengers and cargo. It is noteworthy that these traffic patterns serve as significant evidence to the historical formation of the region and its network of cities. Based on Santos' (1978) proposition and Corrêa's (2007) assertion regarding roughness, it is evident that spatial forms have a significant impact on the present. Corrêa (1997) argues that regional spatial organization inherits forms from the past, leading to different patterns of spatial interactions due to a broad range of reasons, with one having more influence than others. (CORRÊA, 1997, p. 296).

Due to the significant changes that have occurred in the Brazilian territory, particularly since the 1930 revolution in which the economy experienced substantial growth, new engineering systems were implemented in regions located far from the country's dynamic center. During the 1970s, road traffic underwent gradual adjustments in cities situated in western Santa Catarina. Gradually, the concentration of road networks resulted in the economic growth and diversification of the urban hubs situated there, and, to some extent facilitated the establishment of multiple autonomous municipalities.

The consolidation of the regional road transport system commenced with the highways leading to the state capitals, namely, Curitiba (PR) and Porto Alegre (RS), in response to established relations with the states of Paraná and Rio Grande

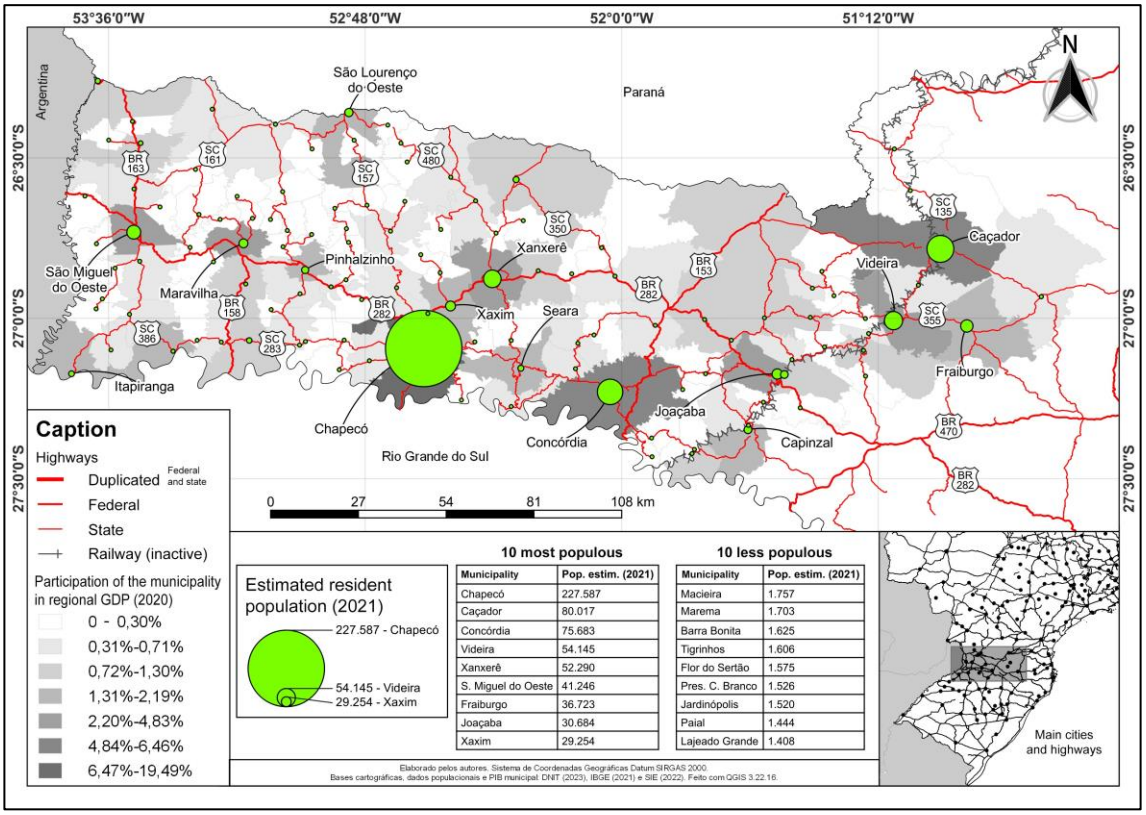
[8] In order to corroborate Corrêa (1999) and Cocco and Silveira (2017), we consider that spatial interactions – conceptually, as a fundamental element of articulation of geographic categories (structure, process, function and form) – represent the relationships between different material formations and its implication in geographic space. Spatial interactions centrally encompass the means of movement, constituents of the process of production and, therefore, the sphere of circulation – mobilization and qualitative transformation involving people, goods, information and capital – in geographic space, under tangible and intangible conditions.

do Sul. Furthermore, the interconnection with Florianopolis, the capital of Santa Catarina and the neighboring regions led by prominent regional capitals, like Passo Fundo in the north of Rio Grande do Sul and Cascavel in the west of Parana, stimulated changes in the regional territory's fluidity condition.

The crossing of the Uruguay River to Rio Grande do Sul, its neighboring state, drove the transformation of road networks. The substitution of slow ferries with road bridges aimed to address transport inadequacies. Since the mid-2000s, crossings have been established between Iraí/RS and Palmitos/SC, Nonoai/RS and Chapecó/SC, and Marcelino Ramos/RS and Concórdia/SC. Later, the construction of the hydroelectric plants (UHE) of Machadinho, Itá, and Foz do Chapecó led to the development of additional passage routes between the southern states. These routes include Maximiliano de Almeida/RS to Piratuba/SC, Aratiba/RS to Itá/SC, and Alpestre/RS to Águas de Chapecó/SC. However, despite this progress, certain points remain disconnected, such as the lack of road connections between the two banks of the Uruguay River. We identify two instances: the first is between Barra do Guarita, RS and Itapiranga, SC, where traffic on the BR-163 highway is interrupted and must cross by ferry; the second occurs in the areas surrounding some HPPs, where the highways leading to the respective dams are still unpaved.

Currently, the territorial organization of engineering systems connected to transportation heavily relies on the utilization of roadways to initiate production. This information is visually depicted on Map 2, which also exhibits the municipal population and GDP.

Map 2 – West Santa Catarina: road network, population and production



Source: cartographic bases from DNIT (2023), IBGE (2021) and SIE (2022)

Despite the existence of a railway that spans a portion of the Peixe River valley, stretching from Alto Bela Vista to Matos Costa and passing through Joaçaba, Videira, and Caçador, the route has remained inactive since the 1990s following the privatization and dismantling of the Federal Railway Network. Silveira (2006, p. 66) emphasized the significance of the southern branch of the EFSPRG in territorial organization. "The history of the Sao Paulo-Rio Grande Railway is connected with the colonization of numerous areas in Santa Catarina, Rio Grande do Sul and Parana. These regions were principally established by extensive agro-industrial complexes."

The region's road network consists of crucial federal highways that offer interconnectivity in both the North-South and East-West directions. As primary federal highways, the following routes are available: BR-282 which links the border with Argentina to the state capital, Florianópolis; BR-153 also known as Transbrasiliana which is connected to Rio Grande do Sul and Paraná; BR-163 which is a significant highway of Brazilian agribusiness and travels through São Miguel do Oeste; BR-158 which connects the West of Santa Catarina to Rio Grande do Sul; and BR-280 which connects Dionísio Cerqueira to the port of São Francisco do Sul. From the perspective of state highways, three important regional road axes are the SC-283, which runs from Itapiranga to Concórdia, the SC-157, connecting Chapecó to São Lourenço do Oeste and Paraná, and the SC-480, which mainly connects Chapecó to Rio Grande do Sul and its Northwest region. Table 1 provides a detailed overview of the primary highways and their integration into the western region of Santa Catarina.

Table 1 – Main highways and articulated municipalities in the west of Santa Catarina

Highway	**Extension (1)**	**Articulated municipalities (1)**	**Main Cities (2)**
BR-153	120,0 km	5	Concórdia
SC-157	99,1 km	6	São Lourenço do Oeste, Quilombo e Chapecó
BR-158	51,5 km	4	Palmitos, Maravilha
BR-163/SC-163	125,3 km	10	São Miguel do Oeste e Dionísio Cerqueira
BR-282	347,4 km	26	São Miguel do Oeste, Maravilha, Pinhalzinho, Chapecó, Xaxim, Xanxerê e Joaçaba
SC-283	187,2 km	16	Itapiranga, Palmitos, São Carlos, Chapecó e Concórdia
BR-480/SC-480	115,9 km	8	São Lourenço do Oeste, Xanxerê e Chapecó

Source: DNIT (2023) and Santa Catarina (2023). (1) in the western region of Santa Catarina. (2) only Center in Zone B or higher, according to IBGE (2020)

When examining the entire regional road network, the State plays a major role since, fortunately, there are currently no concessions established in the western part of the state. The role of the Santa Catarina government is vital in the development of these infrastructures, as the state apparatus is accountable for 77.48% of the paved highways that constitute the region, totaling just over 2,131 km in length. The western region of Santa Catarina has 2,571 kilometers of paved roads, located between state and federal highways (DNIT, 2023; SANTA CATARINA, 2023).

The State assumed a larger role in the early decades of this century, executing various infrastructure projects during the Lula and Dilma administrations, notably from 2003 to 2014 (Ely, 2017; Von Dentz, 2022). Small cities in the majority of the analyzed territory have benefited significantly from these improvements. Not only have they experienced an internal multiplier effect, but they have also expanded their ability to attract new investments in industrial plants and improve existing activities on both a regional and national level. Von Dentz (2022) reported at least 34 significant projects in western Santa Catarina between 2004 and 2022, which largely benefited small towns and amounted to a total of $2.032 billion. The projects had a causal connection to the development of infrastructure in the region, thus highlighting the importance of investment in these areas for future growth and prosperity.

In order to further investigate significant themes pertaining to transportation in western Santa Catarina, we will initially examine road freight transportation. This activity has a notable role in the regional geo-economic landscape. Economic transport agent records are among the indicators that highlight the role of this activity in developing services, both through the complementarity engendered from agribusiness and through general economic vitality. The western region of Santa Catarina accounts for about 20% of cargo transport registrations by road in the state, with over 12,000 registrations in the first half of 2022. It ranks second to the Vale do Rio Itajai mesoregion, which has over 13,400 registrations.

This figure encompasses various economic agents, including independent drivers, transport companies, and cooperatives (ANTT, 2022). Out of the over 12,000 registrations, 6,500 were transport companies, 5,500 were self-employed, and 26 were registered as cooperatives. Additional data of note include the prevalence of formal employment within road freight transport: as of 2021, the industry boasted a total of 28.2 thousand workers in the region, a figure exceeding that of any other Santa Catarina mesoregion and constituting approximately 32.5% of the state's overall employment in this sector - approximately 86.8 thousand jobs (BRASIL, 2021).

According to the National Registry of Road Cargo Transporters (RNTRC) of the National Land Transport Agency (ANTT), municipalities along BR-282 play a significant role in the distribution of road freight transport agents. The top two municipalities are Chapecó with 1,578 records and Xanxerê with 639 records. Concórdia ranks third with 638 records, followed by Caçador with 605 records and Videira with 570 records. The inclusion of numerous small cities in the list is notable due to the high number of registrations operating within the sector. ANTT's (2022) data reveals that several cities, namely Iporã do Oeste (158 registrations), Palmitos (173), Cunha Porã (184), São José do Cedro (196), Pinhalzinho (239), Xaxim (319), Fraiburgo (351), São Lourenço do Oeste (367), and Maravilha (373), possess over 100 registrations each.

Because of the predominance of roads, the regional terrain is influenced by this mode of transportation, with the presence of various fixed services created to meet its requirements being significant. The presence of numerous companies and, notably, independent drivers devoted to this activity forms a series of complementary relationships. Cities serve as crossroads for transportation, housing, mechanics, gas stations, and other specialized services. Small cities like Maravilha,

Pinhalzinho, Xaxim, Xanxerê, Seara, and Irani not only feature complex industrial activities in their municipalities but also have a geographic proximity that creates an advantageous synergy among them. Moreover, these cities have a considerable amount of stable geography as previously mentioned.

Road passenger transportation is a significant factor in indicating the circulation dynamics in the analyzed region. Throughout the years, road network axes were established among the three states in the southern region, with West Santa Catarina acting as a crucial link for public transport of road passengers. This dynamic is linked to the interplay between urban and road networks, producing flows of varying intensities and directions.

Lemos and Santos (2021) analyzed small cities within the interstate passenger transportation network, emphasizing the essential role of this public service in integrating the territory and the significance of specific small urban centers in the network's operations. Public bus transportation's geographic network plays an important part in small cities, and these cities are also important in the transportation mode. The participation in this mode of public transportation within the region is influenced by the location of smaller urban centers, which depends on the interactions with the road network. This phenomenon is particularly prominent in the interstate mode of transportation, which links various municipalities across two or more states in Brazil. This is a result of the significant role played by the western region of Santa Catarina, which hosts multiple connecting highways that link to other regions of the country.

Cities like Xanxerê, São Miguel do Oeste, Maravilha, Xaxim, Dionísio Cerqueira, and São José do Cedro feature several interstate bus lines, but the traffic volumes are not proportional. Xanxerê has 35 operations, while more intricate urban centers, like Porto União and Caçador, have fewer than 15 services. This trend mainly results from the interplay between cities' geographic location and highway network. Some stations also function as transfer points between the Santa Catarina intercity public transportation and interstate lines, as the latter have a more limited territorial scope.

The intensity of extra-regional articulations in the flows is a product of the regional socio-spatial formation itself. Passenger movement is significantly higher towards Porto Alegre, the capital of Rio Grande do Sul, and the Northwest region of that state. Similarly, in Paraná, interstate flows are more intense with regions in the Southwest and West, such as Pato Branco, Francisco Beltrão, and Cascavel. On a regional level, transportation flows could increase with an improved public transit system that has better supply and coverage conditions. Various challenges exist in navigating between small towns and more developed urban centers, such as Chapecó. Thus, transportation and public services in the region are bottlenecks that require attention to reinforce territorial integration.

Labor mobility emphasizes the importance of road flows. The connectivity between cities and highways eases commuting flows, particularly for work, education, and medical purposes. Multiple small cities serve as the origin and destination for labor mobility flows, as reported by companies and passenger transport regulatory bodies. Xaxim, Maravilha, Pinhalzinho, Seara, Itapiranga, São Miguel do Oeste, Videira, Ipumirim, and Xanxerê are cities in the state of Santa Catarina, Brazil (ANTT, 2020; 2021).

Overcoming current transportation bottlenecks at a regional level is noteworthy. We can critique the established modal matrix in light of this. This matrix is a mere sliver of the Brazilian reality. At present, 67% of cargo transportation in the country is done by road (EPL, 2021). The road network defines the integration conditions of the territory, and it is the most extensive and pervasive transportation infrastructure.

Despite its widespread use, it is not the most efficient mode of transportation, especially given the high density of cargo moving to and from the Western Santa Catarina region. According to Rangel (2012), even in the mid-20th century, as Brazil's productivity and transportation needs grew, the search for more efficient modes, such as rail, became a historical challenge. Currently, there is an urgent need for transformations in the transport modal matrix, unlike what occurred in the middle of the last century with the rise of road transport as a central mode for national territorial integration. The issue requires investment that generates an internal multiplier effect alongside utilizing idle capacity of the remaining Brazilian transport material industrial park (Rippel; Viceli; Von Dentz, 2021; Silveira, 2022).

The context of Western Santa Catarina presents a promising opportunity for addressing the Brazilian crisis with strategic investments in infrastructure aimed at fostering economic growth. This reality calls for both qualitative and quantitative changes in transportation, including the implementation of projects proposed over several decades such as new railway routes to connect this region with Paraná state and the Santa Catarina coastal strip, linking to ports and railways throughout the state (Julio, 2018; Zanella, 2018).

The execution of long-standing projects, like the railway connections connecting São Miguel do Oeste and Lages, for which plans were officially made by the mid-1990s, largely relies on policies that are dedicated to national development and its regional impact. This requires abandoning unproductive localist and fragmented views. Furthermore, reinforcing the national content of new infrastructure projects could result in an effective positive reaction at the macroeconomic level from the perspective of national sovereignty. It is important to note the potential benefits of such reinforcements in boosting the overall economy. This holds true for the railway sector and its respective industrial sector, which currently remain largely idle despite urgent demands for territorial integration.

4 Final Remarks

The text's construction permits at least three final considerations. Firstly, it is necessary to contemplate the capitalist mode of production as something that is sustained by constant articulation among different locales, resulting in the erosion of the liberalizing and partisan localisms of the current neoliberal era. This perspective is not biased towards circulation alone, but rather an essential comprehension of production's different sectors as interrelated parts of a cohesive whole. The capitalist territorial arrangement's distinct and unequal nature, and the significance of places within it, are divulged by production, both broadly and narrowly defined.

Second: This text describes the relational nature of the urban network. Despite the manifestation of hierarchies and cities with greater concentrations of activities and centralization of economic-political power, the network is supported by an expanded territorial division of labor and dispersion of activities that can only be explained on a regional scale. This understanding demonstrates that economic complexity depends on interactions that are multi-localized.

Third: It is essential to address economically fewer complex cities to challenge the common notion that such urban agglomerations are less relevant. Small cities ought to be viewed dialectically, taking into account associated and overlapping scales. Some cities may be considered small on a national or state scale. However, regionally, the productivity of the activities located in their territories, as well as the spatial interactions that occur there, plays a crucial role in supporting the productive activities located in more advanced and dynamic centers. It is important to note that this support function is highly significant and necessary for the growth of complex productive activities.

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